Installing Lazarus on Mac OS X

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Abstract

In this article we explain how to install Lazarus on the Mac. These instructions are for Mac OS X Maverick and higher, including 'El Capitan'.

1 Introduction

Installing Lazarus on a Mac is unfortunately not as easy as e.g. on Windows. On Windows, the Lazarus installation contains all necessary prerequisites. This is not the case on Mac OS X, where several other tools are needed:

XCode the development environment of Mac, which contains some command-line tools.

gdb The gnu debugger.

These tools should be installed before installing Lazarus.

The lazarus installation itself is available from the download page on

```
http://www.lazarus-ide.org
```

The installation consists of several packages, shown in figure figure 1 on page 2:

fpc This is the Free Pascal Compiler, which the lazarus IDE uses to compile the code.

fpcsrc These are the sources of the Free Pascal run-time library units and all units that are made available by the Free Pascal team. They are needed for the IDE to be able to offer code completion and other advanced features.

lazarus this is the lazarus IDE itself.

2 Installing XCode

The Free Pascal installation checks whether XCode command-line tools are installed. So it is best to install XCode first. Installing XCode can be done using the App Store, see figure **??** on page **??**. It is available for free, and currently at version 7.1. The download is over 4Gb, so installation can take a while. Once XCode is installed, 2 things must be done:

1. Accept the license agreement. As long as the license agreement was not accepted, none of the code tools will work. Accepting the license agreement can be done by opening XCode, and it will prompt you to accept the license agreement. It can also be done on the command-line, see below.

Figure 1: Lazarus downloads

Home / Lazarus Mac OS X i386 / Lazarus 1.4.4

Name ⬍	Modified ⬍	Size ⬍	Dow
⬆ **Parent folder**			
lazarus-1.4.4-20151003-i386-macos...	2015-10-04	168.3 MB	
fpcsrc-2.6.4-20140421-i386-macosx....	2015-10-04	23.1 MB	
fpc-2.6.4.intel-macosx.dmg	2015-10-04	91.1 MB	
README.txt	2015-10-04	704 Bytes	
Totals: 4 Items		**282.5 MB**	

Figure 2: XCode installation from App Store

2
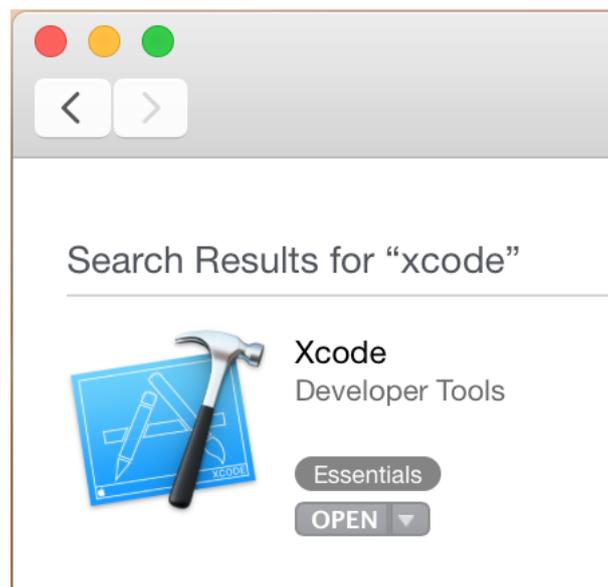
2. Install the XCode command-line tools (e.g. linker and assembler). This must be done on the command-line.

To install the command line tools or accept the license agreement, open a terminal window. This can be done by typing Terminal in the spotlight search bar and hitting enter. A window will open, in which the following commands can be typed: (followed by the enter key)

```
sudo xcodebuild -license
xcode-select --install
```

The first is only necessary if you didn't accept the license agreement yet. For newer versions of Mac OS X, the xcode-select command can be executed without an installation of XCode.

3 Installing MacPorts

Lazarus uses an external debugger: the GNU Debugger (gdb), to debug programs. Earlier versions of XCode included a gdb debugger, but more recent versions do not. So an external debugger must be installed. Several options are possible, one of them is installing MacPorts and using that to install a gdb.

Installing and using a debugger is somewhat of a chore: To enhance security, not every regular program is allowed to debug another program on Mac OS X. To allow a program to debug another there are 2 options:

1. Sign the debugger executable.

2. Modify the run environment so it allows non-signed binaries to debug other programs.

Macports version 2.3.4 follows the second route.

Installing macports is relatively simple: go to

```
http://www.macports.org/
```

and download an installer package for your version: a .pkg file will be downloaded, double clicking it in finder starts the installer, see figure 3 on page 4. Installation can take a while. once MacPorts is installed, a new Terminal window must be opened, and the following command must be issued to install the GNU debugger.

```
sudo port install gdb
```

Macports will then proceed to download and install the GNU debugger. When all is done, on a default installation, the gnu debugger will be installed in

```
/opt/local/bin/ggdb
```

This is important to remember for a later step.

One of the things that Macports does when installing gdb, is printing a warning on the screen, see figure figure 4 on page 4. This tells us that the run-time environment for the debugger must be changed, so debugging using the newly installed gdb is allowed. This change must be done using a text editor. The important part is the -sp argument. When changing this argument, it is best to restart your Mac, in order to make sure that the argument is correctly applied.

Figure 3: MacPorts installation
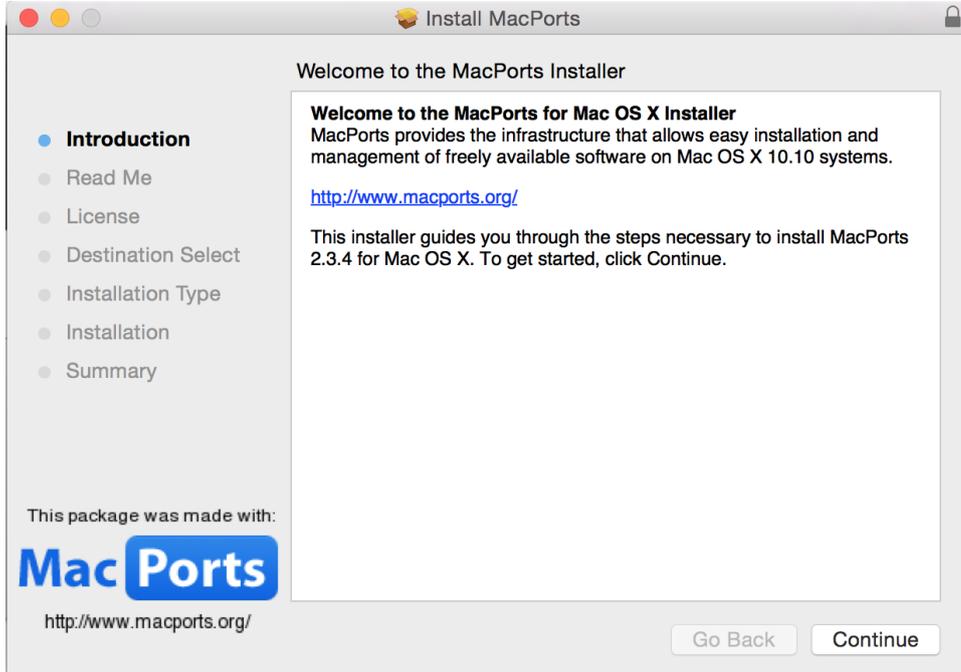
Figure 4: Modifying the runtime environment
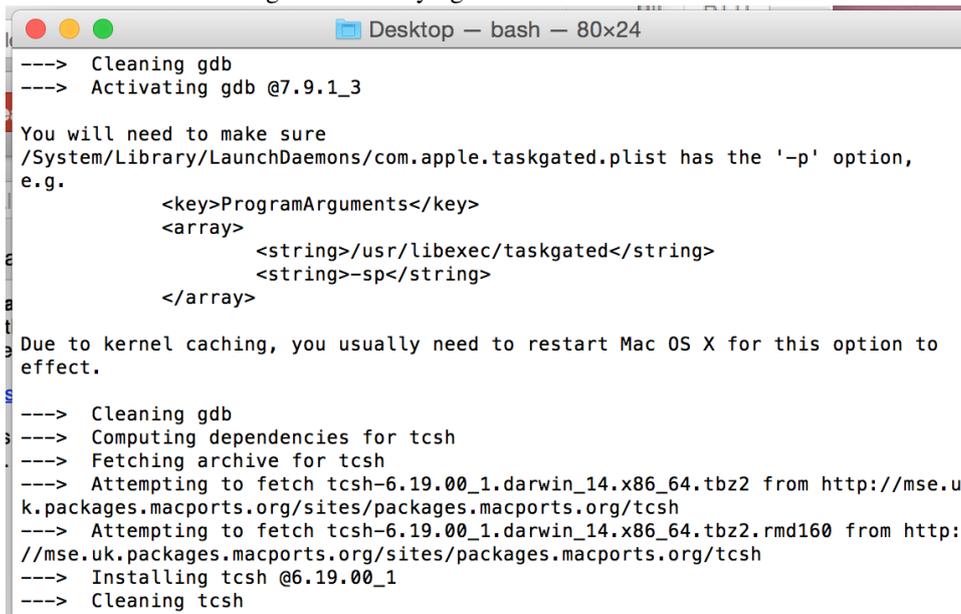
Figure 5: Installing Free Pascal
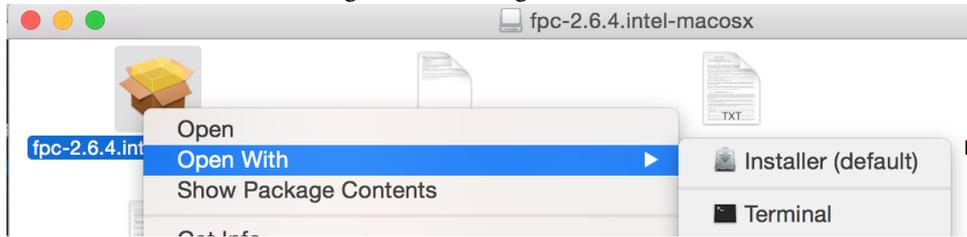
4 Installing Free Pascal

With all the preliminaries in place, it is now possible to install the FPC compiler and Lazarus itself. This can be done using the installers found on the Lazarus website. When double clicking the installer file fpc-2.6.4.intel-macosx.pkg, it can be that Mac OS X complains that the package cannot be installed because it is not trusted. In that case, it is sufficient to click the package file using the Ctrl-key pressed, to bring up the context menu, and choosing the 'Open With' and 'Installer (default)' menu item to install the package anyway (see figure 5 on page 5). The same menu item can be found under the 'File' menu. The same procedure must be repeated for the fpcsrc-2.6.4-20140421-i386-macosx.dmg package file, to install the Free Pascal sources.

5 Installing the Lazarus IDE

Lastly, the lazarus installer can be started. The same procedure as for Free Pascal applies. When finished, the IDE can be started. The IDE will begin by checking your Mac, to see if all necessary requirements are installed. If you have installed Free Pascal in its default location, then Lazarus will find the sources and the compiler binary as well as make.

It may not find the debugger, and will present you with a warning as shown in figure 6 on page 6. At that point, the debugger as provided by the MacPorts installation must be entered:

```
/opt/local/bin/ggdb
```

After that, Lazarus can be started and will be able to debug.

6 Conclusion

Installing Lazarus on the Mac is not as easy as might be expected, but can be done. The problem lies not so much in the installation of Lazarus itself, but the many requirements for the proper functioning of Lazarus, in particular a debugger. There are many ways to get a debugger on the system, and using the steps in this article it is possible to install Lazarus and enjoy all the power of this truly cross-platform IDE.

Figure 6: Starting the Lazarus IDE